

# Claims

- [c1] 1. A method of manufacturing a collimator mandrel for a CT imaging system, the method comprising the steps of: forming a core of base material; and applying a tapered layer of attenuating material to the core.
- [c2] 2. The method of claim 1 wherein the step of applying includes placing a cast circumferentially around the core.
- [c3] 3. The method of claim 2 wherein the cast has an inner surface creating varying degrees of thickness circumferentially around the core.
- [c4] 4. The method of claim 3 further comprising the steps of placing the cast circumferentially around the core such that a void of varying thickness is created between an outer surface of the core and an inner surface of the cast and filling the void with the attenuating material.
- [c5] 5. The method of claim 4 further comprising the step of allowing the attenuating material to cure and then removing the cast.
- [c6] 6. The method of claim 1 wherein the attenuating mate-

rial is at least one of an attenuating alloy and an attenuating epoxy.

- [c7] 7. The method of claim 1 wherein the attenuating material is tungsten.
- [c8] 8. The method of claim 7 further comprising the step of affixing a thin layer of tungsten to the core and then machining the thin layer to have a varying thickness.
- [c9] 9. The method of claim 1 wherein the core includes a cylindrical rod.
- [c10] 10. The method of claim 1 wherein the base material includes stainless steel.
- [c11] 11. The method of claim 1 wherein the step of applying includes the step of sputtering the tapered layer of attenuating material to the core.
- [c12] 12. A CT collimator mandrel comprising a solid cylindrical rod positioned within a layer of attenuating material, the mandrel formed by:
  - shaping a bulk of supporting material into a core;
  - positioning the core in a cast such that a non-uniform void is created between an outer surface of the core and an inner surface of the cast;
  - placing attenuating material into the void; and

removing the cast upon curing of the attenuating material.

- [c13] 13. The CT collimator mandrel of claim 12 further formed by machining the cured attenuating material to create a tapered attenuating material layer.
- [c14] 14. The CT collimator mandrel of claim 12 wherein the attenuating material extends circumferentially around an entire length of the core.
- [c15] 15. The CT collimator mandrel of claim 12 wherein the supporting material includes stainless steel and the attenuating material includes tungsten.
- [c16] 16. A process of constructing a mandrel for a CT imaging system, the process comprising the steps of:  
forming a solid cylindrical rod of a first material; and  
depositing a layer of a second material designed to substantially block x-rays on the cylindrical rod.
- [c17] 17. The process of claim 16 wherein the first material includes stainless steel.
- [c18] 18. The process of claim 16 wherein the second material includes tungsten.
- [c19] 19. The process of claim 18 further comprising the step of machining the layer of second material to be tapered

circumferentially around the rod.

- [c20] 20. The process of claim 16 affixing a pivot stud to each end of the cylindrical rod to support connection of the rod to an eccentrics assembly.